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2001P15526US

PATENT APPLICATION  
09/990,844

7

### REMARKS

At the time of the Office Action, Claims 1-14 and 16-21 were pending in this Application. Claim 15 was previously canceled without prejudice. Claims 1-4, 11-14, and 16-21 are allowed. Claim 5 stands rejected. Claims 6-10 were objected to. Applicants respectfully request reconsideration and favorable action in this case.

#### Rejections under 35 U.S.C. § 102

Claim 5 is rejected by the Examiner under 35 U.S.C. §102(b) as being anticipated by U.S. Patent 5,644,603 issued to Ushirokawa ("*Ushirokawa*"). Applicants respectfully traverse and submit the cited art does not teach all of the elements of the claimed embodiment of the invention.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987). Furthermore, "the identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co. Ltd.*, 868 F.2d 1226, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989). Applicant respectfully submits that the art cited as anticipatory by the Examiner cannot anticipate the rejected Claims, because the cited art does not show all the elements of the present Claims.

*Ushirokawa* discloses a method in which certain symbols are not included into the sequence estimation. To this end, *Ushirokawa* suggests to use a power threshold level as shown in Figs. 5A and 5B. Thus, only a limited amount of symbols are used in the sequence estimation. However, this does not have any effect on the number of metric calculations performed in a Viterbi equalizer. In fact, *Ushirokawa* shows an exemplary trellis and its metric calculations in Fig. 6 and 14. Each of the trellis is populated with all possible metric calculation. Hence, no reduction in the amount of metric calculations is either disclosed or suggested by *Ushirokawa*. *Ushirokawa* discloses merely to exclude certain symbols that do not meet a predefined power threshold from the sequence.

ATTORNEY DOCKET  
2001P15526US

PATENT APPLICATION  
09/990,844

8

Contrary to this concept, independent Claim 5 includes the following limitations:

*“determining the value of a previous symbol from the sequence of symbols; and*  
generating said reduced trellis by calculating only path metrics for states in which the previous symbol has the determined value.”

Thus, this method generates a reduced trellis by omitting the calculation of certain path metrics. In other words, only path metrics are calculated for symbols that have a predefined value. The Examiner apparently interpreted the power of a transmitted symbol as the claimed limitation of *“the value of a previous symbol.”* Applicant respectfully disagrees with this comparison. The power value of a symbol is not used for setting or determining a state in a trellis. The value of a symbol as claimed in independent claim 5 is a symbol value and defines the state in a trellis. Thus, as shown in FIG 5A of the present application (similar to Fig. 6 of *Ushirokawa*), 8 states are possible, wherein each state is defined by the value of three symbols for example, state 1 has three symbols each having a value of “0” whereas state 8 has three symbols each having a value of “1”. The transmission power of a symbol is hereby irrelevant. Hence, the transmission power cannot be used to select a state in a trellis because a state in a trellis is defined by the actual values of the symbols.

According to Claim 5, first a value of a previous symbol, for example of the first symbol in the group of three symbols, is determined. For example, as shown in Fig. 5B of the present application this symbol is assumed to have the value “0.” Now, the method looks at all states in the trellis in which this symbol has the value “0” and only calculates path metrics for those states. This is shown in Fig. 5C.

The method proposed by *Ushirokawa* does not provide for such a reduction. *Ushirokawa* discloses to use a trellis with reduced states but not with reduced metric calculation. *Ushirokawa* teaches to completely ignore a previous symbol by not including it into a trellis at all. See, *Ushirokawa*, Fig. 14. Fig. 14 of *Ushirokawa* shows that the first symbol of a three symbol state has been ignored (ignored states are shown in parentheses). However, its value could have been, for example, “0” or “1” as shown in the trellis of Fig. 14. Hence, *Ushirokawa* discloses a

ATTORNEY DOCKET  
2001P15526US

PATENT APPLICATION  
09/990,844

9

different system in which the number of states in a trellis are reduced in a different way. However, once the trellis has been determined, all path metrics must be calculated.

In summary, *Ushirokawa* does not disclose the limitations of independent Claim.

**Allowable Subject Matter**

Claims 1-4 and 13-21 are allowed. The Examiner indicated that Claims 6-10 would be allowable if rewritten. However, as stated above, Applicant believes that all claims are allowable in view of the cited prior art.

**CONCLUSION**

Applicants have made an earnest effort to place this case in condition for allowance in light of the remarks set forth above. Applicants respectfully request reconsideration of the claims as amended.

Applicants believe there are no fees due at this time, however, the Commissioner is hereby authorized to charge any fees necessary or credit any overpayment to Deposit Account No. 19-2179.

If there are any matters concerning this Application that may be cleared up in a telephone conversation, please contact Rosa S. Kim at 650-694-5330.

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Respectfully submitted,



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